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10/569,177	02/22/2006	David A. Fish	GB030146	1995

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EXAMINER	
CRAWLEY, KEITH L	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
12/04/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/569,177	FISH, DAVID A.	
	Examiner	Art Unit	
	KEITH CRAWLEY	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *1-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16,17,19-21 and 26-29* is/are rejected.

7)☒ Claim(s) *18,22-25 and 30-32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings (replacement sheet for fig. 4) were received on 9/16/09. These drawings are acceptable, and thus the objection to fig. 4 is withdrawn.

Double Patenting

In the response filed 9/16/09, Applicant indicated a terminal disclaimer was being submitted with said response. No such terminal disclaimer has been received, and thus the provisional nonstatutory obviousness-type double patenting rejection of claims 17-22, 24-27, and 29-30 is maintained.

Claim Rejections - 35 USC § 112

In light of the amendment and remarks filed 9/16/09, the rejection of claims 16-21, 23-24, 28-30, and 32 under 35 U.S.C. 112, second paragraph, is withdrawn.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 16-17, 21, 26, and 28-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Inoue et al. (US 7,071,635).

Regarding claim 16, Inoue discloses a display device comprising an array of light emitting display elements arranged in rows and columns (fig. 1, organic EL display 2, see fig. 8),

with a plurality of pixels in a column being supplied with current from a respective column power supply line (fig. 8, drive line 4, see col. 2, line 63)

and the pixels being addressed row by row, the addressing of all rows defining a field period (col. 2, line 8-12, gate driver successively applies voltages to scanning electrodes, defining this as a field period is well known in the art),

the device further comprising: compensation circuitry for modifying target pixel drive currents corresponding to desired pixel brightness levels to take account of the voltage on the column power supply line at each pixel resulting from the currents drawn from the column power supply line by the plurality of pixels in the column being supplied by the column power supply line for each row addressing cycle in a field period (figs. 1 and 2, see col. 3, line 44-59)

and the dependency of pixel brightness characteristics on a voltage on a row conductor at the pixel (col. 5, line 36-41 and col. 7, line 10-25, current supplied to EL element is controlled according to the voltage on gate of TR2, voltage-current relationships are referenced in compensation scheme; see fig. 8, gate voltage of TR2 is

controlled according to the voltage on gate of TR1 via row conductor, see col. 2, line 1-14).

Regarding claim 17, Inoue discloses wherein the compensation circuitry comprises: means for applying an algorithm to the target pixel drive currents which represents a relationship between the currents drawn by the plurality of pixels in a column and the voltages on the column power supply line at the locations of the pixels (figs. 1 and 2, see col. 3, line 44-59)

and the dependency of the pixel brightness characteristics on the voltage on the row conductor (col. 5, line 36-41 and col. 7, line 10-25, current supplied to EL element is controlled according to the voltage, voltage-current relationships are referenced in compensation scheme).

Regarding claim 21, Inoue discloses wherein the algorithm uses a value including a term derived from a resistance of the column power supply line (fig. 5, resistance R0 and R of drive line 4, see col. 5, line 42-51 and mathematical expressions 1 and 2).

Regarding claim 26, Inoue discloses wherein the means for applying an algorithm comprises a look up table (fig. 2, lookup table 31, see col. 7, line 10-18).

Regarding claim 28, this claim is rejected under the same rationale as claim 16.

Regarding claim 29, this claim is rejected under the same rationale as claim 17.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue in view of Kawashima et al. (US 6,091,203).

Regarding claim 19, Inoue discloses wherein the algorithm uses a value including terms derived from: the voltage-current characteristics of the drive transistor and the voltage-current characteristics of the light emitting display element (col. 5, line 36-41 and col. 7, line 10-25, current supplied to EL element is controlled according to the voltage, voltage-current relationships are referenced in compensation scheme);

Inoue fails to disclose wherein each of the plurality of pixels in a column comprises a current sampling transistor which samples an input current and provides a drive voltage to a drive transistor.

Kawashima teaches wherein each of the plurality of pixels in a column comprises a current sampling transistor which samples an input current and provides a drive voltage to a drive transistor (fig. 2, conversion TFT 18 samples current and provides

drive voltage to drive TFT 15, see col. 8, line 10-27, see also fig. 6 and col. 10, line 26-30).

Inoue and Kawashima are both directed to methods and devices for driving active matrix displays. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method and device of Inoue with the method and device of Kawashima since such a modification provides an element driving device capable of controlling the operation of active elements at a desired state (Kawashima, col. 3, line 23-26) and provides a flat display device in which crosstalk is suppressed (Inoue, col. 2, line 41-43).

Regarding claim 20, Inoue discloses wherein the drive transistor and the light emitting display element of each of the plurality of pixels in a column are in series between the column power supply line and a common line (fig. 5, drive transistor TR2 and EL element 20 are in series between drive line 4 and counterelectrode).

5. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue in view of Cok (US 7,164,417).

Regarding claim 27, Inoue fails to disclose at least one pixel compensation module, and means for updating the values of the look up table to enable changes in pixel brightness characteristics over time to be modeled based on analysis of the characteristics of the pixel compensation module.

Cok teaches at least one pixel compensation module (fig. 1, light emitting element 17 and photosensor 15, see col. 2, line 54-60),

and means for updating the values of the look up table to enable changes in pixel brightness characteristics over time to be modeled based on analysis of the characteristics of the pixel compensation module (fig. 1, col. 2, line 37-53, see also col. 3, line 33-42 and col. 2, line 27-29).

Inoue and Cok are both directed to methods and devices for driving active matrix displays. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method and device of Inoue with the method and device of Cok since such a modification provides a simple design for accommodating optical feedback from active matrix display devices (Cok, col. 1, line 66-67) and provides a flat display device in which crosstalk is suppressed (Inoue, col. 2, line 41-43).

Allowable Subject Matter

6. Claims 18, 22-25, and 30-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed 9/16/09 have been fully considered but they are not persuasive. Applicant argues that Inoue fails to disclose taking account of “the

dependency of pixel brightness characteristics on a voltage on a row conductor at the pixel," as recited in independent claims 16 and 28. Examiner respectfully disagrees.

Applicant points to prior art figure 2 of the applicant's specification showing an address transistor 16 which is turned on by a row address pulse on the row conductor 4. This address transistor is disclosed by the transistor TR1 in figure 8 of Inoue, in which the gate of TR1 is connected to a row conductor connected to gate driver 61. Thus, a pulse on this row conductor connected to the gate of TR1 is necessary to switch on/off TR1, thus enabling a data signal to be stored in capacitance element C (see Inoue, col. 2, line 1-14). The operating state of the second transistor TR2 (see Inoue, fig. 8) is then dependent on the charge stored in the capacitance element C, and current is then supplied to EL element 20 depending on this stored charge (see Inoue, col. 2, line 15-21). Thus the brightness characteristics of the EL element are dependent upon both the data signal stored in capacitance element C and the voltage on the row conductor responsible for switching on/off TR1, and therefore Inoue discloses the limitation "compensation circuitry for modifying target pixel drive currents corresponding to desired pixel brightness levels to take account of the voltage on the column power supply line at each pixel resulting from the currents drawn from the column power supply line by the plurality of pixels in the column being supplied by the column power supply line for each row addressing cycle in a field period and the dependency of pixel brightness characteristics on a voltage on a row conductor at the pixel," as stated in the above rejection of claim 16.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH CRAWLEY whose telephone number is (571)270-7616. The examiner can normally be reached on M-F, 7:30-5:00 EST, alternate Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571)272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bipin Shalwala/
Supervisory Patent Examiner, Art Unit 2629

/KEITH CRAWLEY/
Examiner, Art Unit 2629